



Small **B**usiness **I**nnovation **R**esearch **S**mall Business **T**echnology **T**Ransfer

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NASA Goddard Space Flight Center
1/10/2017



Presentation: Strategic alignment of your research interest to SBIR/STTR subtopics

This presentation will provide tips on how to focus your research interests on the topics/subtopics that gives your organization the best opportunity to highlight your strengths which provides the best opportunity for a strong proposal.

Suggested Strategies For Potential Proposers



- Understand how your expertise can address NASA's technology needs
- Review previous solicitations
- Properly plan your proposal development process
- When the new solicitation is released, review it thoroughly
- Establish relationships with small businesses
- Make sure your proposal is compliant with the solicitation
- Work on your commercialization plan while your proposed idea is incubating

Review previous solicitations



NASA SBIR Website

NASA SBIR/STTR
Small Business Innovation Research / Small Business Technology Transfer

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Press Release Mar 2016
2015 Phase II Selection Announcement
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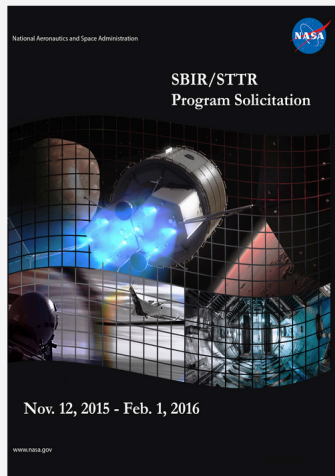


Solicitations

The SBIR and STTR Solicitations are produced annually in partnership with NASA's Mission Directorates and Centers to focus on the Agency's priority mission needs. These needs are organized under topics and subtopics within the Solicitation. Solicitations for both programs are available online only.

Open and previous Solicitations are accessible below:

RECENT



FY 2016 SBIR/STTR Solicitation

Open from November 12, 2015 to February 01, 2016

Selections scheduled to be announced on April 28, 2016

Previous Solicitations

- 2015 SBIR/STTR
- 2015 SBIR Select
- 2014 SBIR/STTR
- 2014 SBIR Select
- 2012 SBIR Select
- 2012 SBIR/STTR
- 2011 SBIR/STTR
- 2010 SBIR/STTR
- 2009 SBIR/STTR
- 2008 SBIR/STTR
- 2007 SBIR/STTR
- 2006 SBIR/STTR
- 2005 SBIR/STTR
- 2004 SBIR/STTR



Subscribe to the NASA SBIR/STTR Newsletter, The Concept, to receive information on upcoming Solicitation dates and other NASA SBIR/STTR news.

Select the
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SubTopics By Mission Directorate





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Select the Technology Area

Solicitation Topics





SBIR/STTR

Small Business Innovation Research / Small Business Technology Transfer

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▼ 9.1 SBIR Research Topics

Aeronautics Research

Human Exploration and Operations

Science

Space Technology

▶ 9.2 STTR Research Topics

Small Business Technology Transfer

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View by

Mission Directorate

Technology Area

Legend

 Subtopic has been amended


 Expand All

The SBIR Program Solicitation topics and subtopics are developed by the NASA Mission Directorates and Centers in coordination with the NASA SBIR/STTR programs.

There are four Mission Directorates (MDs):

 **Aeronautics Research** 

NASA's Aeronautics Research Mission Directorate (ARMD) expands the boundaries of aeronautical knowledge for the benefit of the Nation and the broad aeronautics community, which includes the Agency's partners in academia, industry, and other government agencies. ARMD is conducting high-quality,... [Read more>>](#)

 **Human Exploration and Operations** 

The Human Exploration and Operations Mission Directorate (HEOMD) is chartered with the development of the core transportation elements, key systems, and enabling technologies required for beyond-Low Earth Orbit (LEO) human exploration that will provide the foundation for the next half-century of... [Read more>>](#)

 **Science** 

NASA leads the nation on a great journey of discovery, seeking new knowledge and understanding of our planet Earth, our Sun and solar system, and the universe out to its farthest reaches and back to its earliest moments of existence. NASA's Science Mission Directorate (SMD) and the nation's... [Read more>>](#)

 **Space Technology** 

The Space Technology Mission Directorate (STMD) enables a new class of missions by drawing on talent from the NASA workforce, academia, small businesses, and the broader space enterprise to deliver innovative solutions that dramatically improve technological capabilities for NASA and the Nation. The... [Read more>>](#)

Legend

 Subtopic has been amended

 Expand All

Select the
Mission
Directorate

Example: 2015 SMD SBIR Subtopics



TOPIC S1 Sensors, Detectors, and Instruments

- **S1.01** Lidar Remote Sensing Technologies
- **S1.02** Microwave Technologies for Remote Sensing
- **S1.03** Sensor and Detector Technology for Visible, IR, Far IR and Submillimeter
- **S1.04** Detector Technologies for UV, X-Ray, Gamma-Ray and Cosmic-Ray Instruments
- **S1.05** Particles and Field Sensors and Instrument Enabling Technologies
- **S1.06** In Situ Sensors and Sensor Systems for Lunar and Planetary Science
- **S1.07** Airborne Measurement Systems
- **S1.08** Surface & Sub-surface Measurement Systems
- **S1.09** Atomic Interferometry
- **S1.10** Cryogenic Systems for Sensors and Detectors

TOPIC S2 Advanced Telescope Systems

- **S2.01** Proximity Glare Suppression for Astronomical Coronagraphy
- **S2.02** Precision Deployable Optical Structures and Metrology
- **S2.03** Advanced Optical Systems and Fabrication/Testing/Control Technologies for EUV/Optical and IR Telescope
- **S2.04** X-Ray Mirror Systems Technology, Coating Technology for X-Ray-UV-OIR, and Free-Form Optics

TOPIC S3 Spacecraft and Platform Subsystems

- **S3.01** Power Generation and Conversion
- **S3.02** Propulsion Systems for Robotic Science Missions
- **S3.03** Power Electronics and Management, and Energy Storage
- **S3.04** Unmanned Aircraft and Sounding Rocket Technologies
- **S3.05** Guidance, Navigation and Control

- **S3.06** Terrestrial and Planetary Balloons
- **S3.07** Thermal Control Systems
- **S3.08** Slow and Fast Light
- **S3.09** Command, Data Handling and Electronics

TOPIC S4 Robotic Exploration Technologies

- **S4.01** Planetary Entry, Descent and Landing and Small Body Proximity Operation Technology
- **S4.02** Robotic Mobility, Manipulation and Sampling
- **S4.03** Spacecraft Technology for Sample Return Missions
- **S4.04** Extreme Environments Technology
- **S4.05** Contamination Control and Planetary Protection

TOPIC S5 Information Technologies

- **S5.01** Technologies for Large-Scale Numerical Simulation
- **S5.02** Earth Science Applied Research and Decision Support
- **S5.03** Algorithms and Tools for Science Data Processing, Discovery and Analysis, in State-of-the-Art Data Environments
- **S5.04** Integrated Science Mission Modeling
- **S5.05** Fault Management Technologies

TOPIC S20 SMD Select Topics *

- **S20.01** Novel Spectroscopy Technology and Instrumentation
- **S20.02** Advanced Technology Telescope for Balloon and Sub-Orbital Missions

Subtopics by Technology Area



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Area

Subtopics by Technology Area



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View by Mission Directorate Technology Area

Legend Subtopic has been amended Expand All

- TA1 Launch Propulsion Systems
- TA2 In-Space Propulsion Technologies
- TA3 Space Power and Energy Storage
- TA4 Robotics, Telerobotics and Autonomous Systems
- TA5 Communication and Navigation
- TA6 Human Health, Life Support and Habitation Systems
- TA7 Human Exploration Destination Systems
- TA8 Science Instruments, Observatories & Sensor Systems
 - TA8.1 Science Instruments
 - TA8.2 Observations
 - TA8.3 Sensor Systems

Select the
Technology
area of
interest

Subtopics by Technology Area



Select the
Subtopic
Technology
area of
interest

S1.01 Lidar Remote Sensing Technologies

Lead Center: LaRC

Participating Center(s): GSFC, JPL

NASA recognizes the potential of lidar technology in meeting many of its science objectives by providing new capabilities or offering enhancements over current measurements of atmospheric and topographic parameters from ground, airborne, and space-based platforms. To meet NASAs requirements for... [Read more>>](#)

S1.02 Microwave Technologies for Remote Sensing

Lead Center: JPL

Participating Center(s): GSFC

NASA employs active (radar) and passive (radiometer) microwave sensors for a wide range of remote sensing applications (for example, see <http://www.nap.edu/catalog/11820.html>). These sensors include low frequency (less than 10 MHz) sounders to G-band (160 GHz) radars for measuring precipitation and... [Read more>>](#)

S1.09 Atomic Interferometry

Lead Center: JPL

Participating Center(s): GSFC

Recent developments of laser control and manipulation of atoms have led to new types of precision inertial force and gravity sensors based on atom interferometry. Atom interferometers exploit the quantum mechanical wave nature of atomic particles and quantum gases for sensitive interferometric... [Read more>>](#)

S1.10 Cryogenic Systems for Sensors and Detectors

Lead Center: GSFC

Participating Center(s): ARC, JPL, KSC, MSFC

Cryogenic cooling systems often serve as enabling technologies for detectors and sensors flown on scientific instruments as well as advanced telescopes and observatories. As such, technological improvements to cryogenic systems further advance the mission goals of NASA through enabling performance... [Read more>>](#)



Understanding how your expertise
can address NASA's technology needs

Space Technology Technical Areas

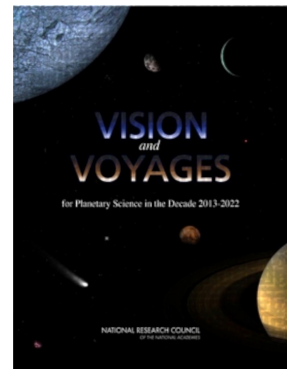
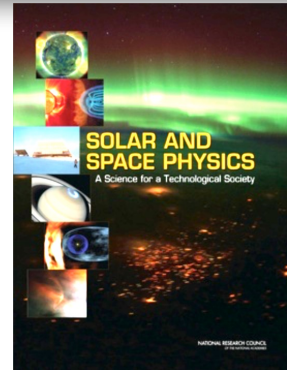


TA 1		LAUNCH PROPULSION SYSTEMS	TA 9		ENTRY, DESCENT, AND LANDING SYSTEMS
TA 2		IN-SPACE PROPULSION TECHNOLOGIES	TA 10		NANOTECHNOLOGY
TA 3		SPACE POWER AND ENERGY STORAGE	TA 11		MODELING, SIMULATION, INFORMATION TECHNOLOGY, AND PROCESSING
TA 4		ROBOTICS AND AUTONOMOUS SYSTEMS	TA 12		MATERIALS, STRUCTURES, MECHANICAL SYSTEMS, AND MANUFACTURING
TA 5		COMMUNICATIONS, NAVIGATION, AND ORBITAL DEBRIS TRACKING AND CHARACTERIZATION SYSTEMS	TA 13		GROUND AND LAUNCH SYSTEMS
TA 6		HUMAN HEALTH, LIFE SUPPORT, AND HABITATION SYSTEMS	TA 14		THERMAL MANAGEMENT SYSTEMS
TA 7		HUMAN EXPLORATION DESTINATION SYSTEMS	TA 15		AERONAUTICS
TA 8		SCIENCE INSTRUMENTS, OBSERVATORIES, AND SENSOR SYSTEMS			

Understanding NASA Needs



- **In Science – “Decadal Surveys” and NASA-developed implementation documents**
 - Planetary Science
 - http://solarsystem.nasa.gov/multimedia/download-detail.cfm?DL_ID=742
 - Astronomy and Astrophysics
 - <http://science.nasa.gov/astrophysics/special-events/astro2010-astronomy-and-astrophysics-decadal-survey/>
 - http://science.nasa.gov/media/medialibrary/2013/04/15/secure-ImpPlan_R2_15Apr2013.pdf
 - Heliophysics (Solar and Space Physics)
 - http://www.nap.edu/catalog.php?record_id=13060
 - http://www.nasa.gov/mission_pages/sunearth/news/decadal-2012.html
 - http://science.nasa.gov/media/medialibrary/2010/03/31/Heliophysics_Roadmap_2009_tagged-quads.pdf
 - Earth Science
 - <http://science.nasa.gov/earth-science/decadal-surveys/>
 - <http://esto.nasa.gov/>
- **In Aeronautics Research**
 - National Aeronautics R&D Plan
 - <http://www.whitehouse.gov/sites/default/files/microsites/ostp/aero-rdplan-2010.pdf>
 - Various Detailed NASA Aeronautics Research documents
 - <http://www.aeronautics.nasa.gov/programs.htm>
- **In Human Research Program**
 - Human Research Roadmap
 - <http://humanresearchroadmap.nasa.gov>





Additional Resources to Support SBIR/STTR R&D

NASA Technology Available (TAV) and Intellectual Property (IP)



- NASA's IP and non-patented software is available for use during an SBIR/STTR performance period
- A non-exclusive, royalty free research license is available during the performance period
- Software identified and requested under a SBIR/STTR contract must request a Software Usage Agreement
- Increase private-sector commercialization of innovations derived from Federal research and development funding
- TAV and IP can be found at <http://technology.nasa.gov>

Gain access to NASA's patented technology portfolio



technology.nasa.gov

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 **TECHNOLOGY TRANSFER PROGRAM**
BRINGING NASA TECHNOLOGY DOWN TO EARTH



NASA Technology Transfer Features



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NASA Technology Transfer Features

YEARS

In celebration of Spinoff's 40th year of publication, we've assembled 40 of the spinoffs that have had the greatest impact on society

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technology.nasa.gov/search/patent/Infrared sensors

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139 results found for Infrared sensors (page 1).




Extreme Heat Resistant Ultraviolet and Infrared Sensor

NASA Langley Research Center has developed an ultraviolet and **infrared** radiation sensor system that can operate in extreme heat environments. The system was originally developed to monitor temperature and radiation during spacecraft re-entry. Thus, the design is survivable in a vacuum and can...



Novel Superconducting Transition Edge Sensor

NASA technologists have developed a novel, superconducting transition edge sensor (TES). Such TES devices are thermometers that are widely used for particle detection, e.g. X-rays, **infrared** photons, atoms, molecules, etc. Energy resolution is chiefly important in superconducting transition...



Functional Near-Infrared Spectroscopy (fNIRS) Cognitive Brain Monitor

Innovators at NASA's Glenn Research Center have developed a Functional Near-**Infrared** Spectroscopy (fNIRS) Cognitive Brain Monitor with improved signal processing to obtain more accurate data. fNIRS has been used successfully to monitor cognitive states and activity, and Glenn's system can be...

Patent of interest

Lastly...



- Only contact NASA SMEs about our SBIR/STTR programs during our “Open Season”. We are currently in a **Blackout Period**.
- Refer to online resources for general SBIR/STTR questions (SBIR.NASA.gov or SBIR.gov)
- Ask direct technical questions with you meet with a NASA Scientist/Engineer/Program Manager

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